

1 1.(original) A pharmaceutical composition for treating osteoporosis comprising at least one
2 zwitterionic phospholipid and at least one bisphosphonate.

1 2.(original) The composition of claim 1, wherein the zwitterionic phospholipid is present in an
2 amount sufficient to reduce GI toxicity of the bisphosphonate and the bisphosphonate is present in
3 an amount sufficient to reduce bone resorption.

1 3.(original) The composition of claim 1, wherein the zwitterionic phospholipid is present in an
2 amount sufficient to reduce GI toxicity of the bisphosphonate and improve bisphosphonate bio-
3 availability when the composition is taken with food and the bisphosphonate is present in an amount
4 sufficient to reduce bone resorption, increase in bone density and/or reduce bone fractures.

1 4.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about
2 0.1 mg per dose and about 1000 mg per dose and a ratio of bisphosphonate to zwitterionic
3 phospholipid is between about 1:0.1 and about 1:100.

1 5.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about
2 1 mg per dose and about 500 mg per dose and a ratio of bisphosphonate to zwitterionic phospholipid
3 is between about 1:0.5 and about 1:50.

1 6.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about
2 2 mg per dose and about 50 mg per dose and a ratio of bisphosphonate to zwitterionic phospholipid
3 is between about 1:1 and about 1:10.

1 7.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about
2 2 mg per dose and about 20 mg per dose and a ratio of bisphosphonate to zwitterionic phospholipid
3 is between about 1:1 and about 1:5.

1 8.(original) The composition of claim 1, wherein the zwitterionic phospholipid is present in an
2 amount sufficient to reduce GI toxicity of the bisphosphonate and the bisphosphonate is present in
3 an amount sufficient to reduce bone resorption, increase in bone density and/or reduce bone

1 fractures.

1 9.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount
2 between about 0.1 mg per dose and about 1000 mg per dose and a ratio of bisphosphonate to
3 zwitterionic phospholipid is between about 1:0.1 and about 1:100.

1 10.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount
2 between about 1 mg per dose and about 500 mg per dose and a ratio of bisphosphonate to
3 zwitterionic phospholipid is between about 1:0.5 and about 1:50.

1 11.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount
2 between about 2 mg per dose and about 50 mg per dose and a ratio of bisphosphonate to zwitterionic
3 phospholipid is between about 1:1 and about 1:10.

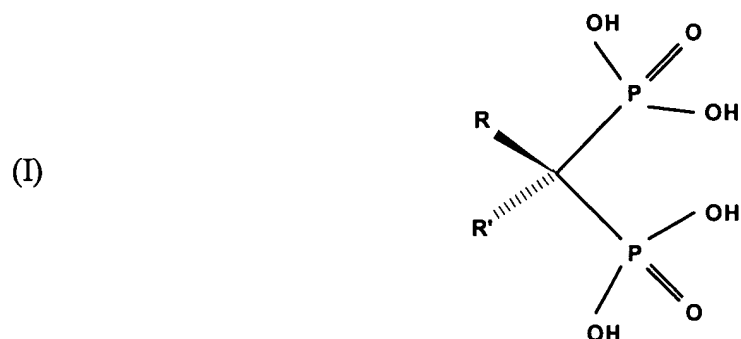
1 12.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount
2 between about 2 mg per dose and about 20 mg per dose and a ratio of bisphosphonate to zwitterionic
3 phospholipid is between about 1:1 and about 1:5.

1 13.(original) The composition of claim 1, wherein the zwitterionic phospholipid increases the bio-
2 availability of the bisphosphonate from about 2 to about 20 fold.

1 14.(original) The composition of claim 1, wherein the bisphosphonate is in its zwitterionic form
2 and forms an ionic association complex with the zwitterionic phospholipid.

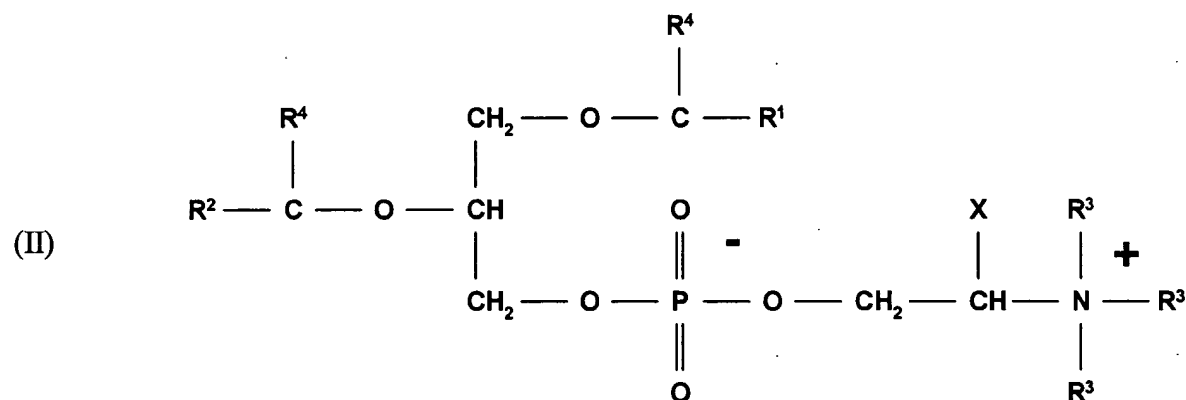
1 15.(original) The composition of claim 1, further comprising a colloidal metal, a metal complex
2 or a mixture or combination thereof.

16.(original) The composition of claim 1, wherein the bisphosphonate is characterized by the general formula (I):



where R' is H, OH or Cl and R is: (a) an alkyl group having 1 to 6 carbon atoms, optionally substituted with amino, alkylamino, dialkylamino or heterocyclyl, where the alkyl groups in alkylamino and dialkylamino substituents have 1 to 5 carbon atoms and are the same or different in the case of the dialkylamino substituted alkyl groups; (b) a halogen; (c) an arylthio, preferably chlorosubstituted; (d) a cycloalkylamino having 5 to 7 carbon atoms; or (e) a saturated five or six membered nitrogen containing heterocyclyl having 1 or 2 heteroatoms.

17.(original) The composition of claim 1, wherein the phospholipid is characterized by the general formula (II):



where R₁ and R₂ are saturated or unsaturated substitutions ranging from 8 to 32 carbon atoms; R₃ is H or CH₃, and X is H or COOH; and R₄ is =O or H₂.

18.(original) The composition of claim 1, wherein the bisphosphonate is selected from the group

consisting of 3-amino-1-hydroxypropylidene-1,1-bisphosphonic acid (pamidronate), 4-amino-1-hydroxybutylidene-1,1-bisphosphonic acid (alendronate), N,N-dimethyl-3-amino-1-hydroxypropylidene-1,1-bisphosphonic acid (mildronate, olpadronate), I-hydroxy-3-(N-methyl-N-pentylamino) propylidene-1,(N-methyl-N-pentylamino) propylidene-1, 1-bisphosphonic acid (ibandronate), I-hydroxy-2-(3-pyridyl) ethylidene-1,(3-pyridyl) ethylidene-1, 1-bisphosphonic acid (risedronate), 1-hydroxyethylidene-1,1-bisphosphonic acid (etidronate), 1-hydroxy-3-(1-pyrrolidinyl) propylidene-1,1-bisphosphonic acid, 1-hydroxy-2-(1-imidazolyl) ethylidene-1, 1-bisphosphonic(1-imidazolyl) ethylidene-1, 1-bisphosphonic acid (zoledronate), 1-hydroxy-2-(imidazo [1,2-a] pyridin-3-yl) ethylidene-1,1-bisphosphonic acid (minodronate), 1-(4-chlorophenylthio) methylidene-1, 1-bisphosphonic acid (tiludronate), 1-(cycloheptylamino) methylidene-1,1-bisphosphonic acid (cimadronate, incadronate), 6-amino-1-hydroxyhexylidene-1,1-bisphosphonic acid (neridronate) and pharmaceutically acceptable salts thereof and mixtures and combinations thereof.

19.(original) The composition of claim 1, wherein the bisphosphonate is selected from the group consisting of risedronate, alendronate, pamidronate and their pharmaceutically acceptable salts and mixtures and combinations thereof.

20.(original) The composition of claim 1, wherein the zwitterionic phospholipid is selected from the group consisting of phosphatidyl cholines, phosphatidyl ethanolamines, phosphatidylinositol, phosphatidyl serines sphingomyelin or other ceramides, phospholipid containing oils, and mixtures and combination thereof.

21.(original) The composition of claim 1, wherein the zwitterionic phospholipid is selected from the group consisting of phosphatidyl choline (PC), dipalmitoylphosphatidylcholine (DPPC), other disaturated phosphatidyl cholines, lecithin oils and mixture and combinations thereof.

22.(original) A pharmaceutical composition, for treating osteoporosis, comprising a pharmaceutically effective amount of a bisphosphonate to reduce bone resorption and a sufficient amount of a zwitterionic phospholipid to reduce GI toxicity and increase the bio-availability of the bisphosphonate.

1 23.(original) The composition of claim 22, the effective amount of the bisphosphonate comprises
2 between about 0.1 mg per dose and about 1000 mg per dose and the sufficient amount of zwitterionic
3 phospholipid is such that a ratio of bisphosphonate to zwitterionic phospholipid is between about
4 1:0.1 and about 1:100.

1 24.(original) The composition of claim 22, further comprising a colloidal metal, a metal complex
2 or mixtures or combinations thereof.

1 25.(original) A pharmaceutical composition comprising a carrier, a pharmaceutically effective
2 amount of a bisphosphonate to reduce bone resorption and a sufficient amount of a zwitterionic
3 phospholipid to reduce GI toxicity and increase the bio-availability of the bisphosphonate, where the
4 phospholipid is in its zwitterionic form and the bisphosphonate is in its zwitterionic form.

1 26.(original) The composition of claim 25, wherein effective amount of the bisphosphonate is
2 between about 0.1 mg per dose and about 1000 mg per dose and the sufficient amount of zwitterionic
3 phospholipid is such that a ratio of bisphosphonate to zwitterionic phospholipid is between about
4 1:0.1 and about 1:100.

1 27.(original) The composition of claim 25, further comprising a colloidal metal, a metal
2 complex or mixtures or combinations thereof.

1 28.(original) The composition of claim 25, wherein the medication is to be taken orally.

1 29.(original) The medication of claim 25, wherein the medication is to be taken orally with food.

1 30.(original) An oral medication for treating osteoporosis comprising an solid object comprising
2 an inert carrier, a pharmaceutically effective amount a bisphosphonate to reduce bone resorption and
3 an amount of a zwitterionic phospholipid sufficient to reduce GI toxicity and increase the bio-
4 availability of the bisphosphonate.

1 31.(original) The medication of claim 30, wherein the effective amount of the bisphosphonate is
2 between about 0.1 mg per dose and about 1000 mg per dose and the sufficient amount of zwitterionic
3 phospholipid is such that a ratio of bisphosphonate to zwitterionic phospholipid is between about
4 1:0.1 and about 1:100.

1 32.(original) The medication of claim 30, further comprising a colloidal metal, a metal complex
2 or a mixture or combination thereof.

1 33.(withdrawn)

1 34.(withdrawn)

1 35.(withdrawn)

1 36.(withdrawn)

1 37.(withdrawn)

1 38.(withdrawn)

1 39.(withdrawn)

1 40.(withdrawn)

1 41.(withdrawn)

1 42.(withdrawn)

1 43.(withdrawn)

1 44.(withdrawn)

1 **45.(withdrawn)**

1 **46.(previously added)** A pharmaceutical composition for treating osteoporosis comprising
2 at least one zwitterionic phospholipid and at least one bisphosphonate, where the phospholipid is in
3 its zwitterionic form and the bisphosphonate is in its zwitterionic form.

1 **47.(previously added)** A pharmaceutical composition, for treating osteoporosis, comprising
2 a pharmaceutically effective amount of a bisphosphonate to reduce bone resorption and a sufficient
3 amount of a zwitterionic phospholipid to reduce GI toxicity and increase the bio-availability of the
4 bisphosphonate, where the phospholipid is in its zwitterionic form and the bisphosphonate is in its
5 zwitterionic form.

1 **48.(previously added)** An oral medication for treating osteoporosis comprising an solid object
2 comprising an inert carrier, a pharmaceutically effective amount a bisphosphonate to reduce bone
3 resorption and an amount of a zwitterionic phospholipid sufficient to reduce GI toxicity and increase
4 the bio-availability of the bisphosphonate, where the phospholipid is in its zwitterionic form and the
5 bisphosphonate is in its zwitterionic form.